REMARKS

Drawings

Corrected drawings are provided in response to the objections to the drawings. Corrected Figs. 13 to 16 have been corrected to read "Prior Art."

Claim Objections

Claims 5 to 20 have been objected to for containing informalities. The claims as attached have been cosmetically amended to correct the informalities. No new matter has been added.

Claim Rejections – 35 USC §112

Claims 5 to 20 have been rejected as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims have been amended to conform to US claiming style and to eliminate indefiniteness. No new matter has been added. Withdrawal of the rejections is respectfully requested.

Claim Rejections – 35 USC §102

Claims 5 and 6 have been rejected as being anticipated by Kwon et al. Applicants submit that the cited claims are not anticipated for the following reasons.

Claim 5 recites:

> 5. (Amended) A method of manufacturing a semiconductor device comprising:
> implanting an impurity of a first conductive type in a semiconductor substrate of a second conductive type;
> providing a first gate insulation film on the semiconductor substrate;
> **diffusing the implanted impurity in the substrate to form a first drain region partly under the first gate insulation film and a second drain region adjacent to and above the first drain region, said first drain region having a different impurity concentration than the second drain region;**

providing a second gate insulation film on the semiconductor substrate except where the first gate insulation film is disposed;

providing a gate electrode that spans from the first gate insulation film to the second gate insulation film;

providing a source region of the first conductive type disposed proximally to one end of said gate electrode; and

providing a third drain region of the first conductive type disposed distally from the other end of said gate electrode and disposed in said second drain region. (Emphasis added.)

The present invention as claimed in claim 5 is not anticipated at least for the bolded features indicated above. In the present invention, the first and second drain regions of different impurity concentrations are formed by diffusing the previously implanted impurity. In contrast, Kwon et al. does not show drain regions with different impurity concentrations. Kwon et al. shows a single drain region 36. Kwon et al.'s region 24, which is alleged to be a drain region in the office action, is a drift region. Further, even if assuming *arguendo* that the drift region 24 and the drain region 36 correspond to the first and second drain regions of the present invention, respectively, Kwon et al. still does not disclose "diffusing the implanted impurity in the substrate to form a first drain region partly under the first gate insulation film and a second drain region adjacent to and above the first drain region, said first drain region having a different impurity concentration than the second drain region." This is because Kwon et al.'s regions 24 and 36 are separately produced by different implantations (see Figs. 1 to 4). That is, the drift region 24 is first formed as shown in Fig. 2 and the drain region 36 is later formed in a separate implantation as shown in Fig, 4. In the present invention, the different drain regions are produced by a single implantation followed by diffusion of implanted impurities. Thus. the present invention of claim 5 is not anticipated at least for the reasons above.

Further, the present invention of claim 5 provides three different drain regions. Kwon et al. discloses only one drain region 36. Thus, at least for this reason, claim 5 is not anticipated by Kwon et al.

For the foregoing reasons, the preset invention of claim 5 is not anticipated by the cited prior art. Moreover, claims 6 to 20, which depend on claim 5 directly or indirectly, are not anticipated at least for the same reason as claim 5. Thus, Applicants respectfully request that all pending claims be allowed.

Attached is a marked-up version of the changes being made by the current amendment.

Applicant asks that all claims be allowed. Please apply any charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 11/27/02

Chris T. Mizumoto
Reg. No. 42,899

Fish & Richardson P.C.
45 Rockefeller Plaza, Suite 2800
New York, New York 10111
Telephone: (212) 765-5070
Facsimile: (212) 258-2291

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Version with markings to show changes made

In the claims:

Claims 5 to 20 have been amended as follows:

5. (Amended) A method of manufacturing a semiconductor device comprising [the steps of]:

[ion-]implanting [a reverse conductive type] an impurity of a first conductive type in [the predetermined region of one conductive type] a semiconductor substrate of a second conductive type;

[forming] providing a first gate insulation film on the semiconductor substrate; [,]

diffusing the implanted impurity in the substrate to form a first [concentration reverse conductive type] drain region partly under the first gate insulation film[,] and a second [concentration reverse conductive type] drain region adjacent to and above the first drain region, said first drain region having a different impurity concentration than the second drain region [so as to range to the first concentration reverse conductive type drain region by diffusing said impurity ion-implanted in a heat treatment for field-oxidizing the predetermined region of said substrate];

providing a second gate insulation film on the semiconductor substrate except where the first gate insulation film is disposed;

[forming] providing a gate electrode [so as to] that spans from the first gate insulation film to the second gate insulation film; [after forming the second gate insulation film on said substrate except said first gate insulation film; and]

[forming a reverse conductive type] providing a source region of the first conductive type [so as to be adjacent] disposed proximally to one end of said gate electrode; [,] and

[forming] providing a third [concentration reverse conductive type] drain region of the first conductive type disposed distally from [facing said source region through a channel region, separated from] the other end of said gate electrode[,] and disposed [included] in said second [concentration reverse conductive type] drain region.

6. (Amended) A method for manufacturing a semiconductor device according to Claim 5, wherein [said step of forming a] providing said first [concentration reverse conductive type] drain region and second [concentration reverse conductive type] drain region comprises [a step of] diffusing said impurity [ion so that the impurity ion-implanted is taken in] from the first gate insulation film [at field oxidation].

7. (Amended) A method of manufacturing a semiconductor device according to Claim 5, further comprising:

[forming a fourth concentration reverse conductive type] providing a layer of the first conductive type [so as] to span from one end [portion] of said first gate insulation film to said third [concentration reverse conductive type] drain region.

8. (Amended) A method of manufacturing a semiconductor device according to Claim 5, further comprising:

forming a [fourth concentration reverse conductive type] layer of the first conductive type having a high impurity concentration [peak] at a [position of the] predetermined depth in said substrate at a region spanning from a [position having the] predetermined space from one end [portion] of said first gate insulation film to said third [concentration reverse conductive type] drain region, and [is formed so that] the high impurity concentration [becomes] being low at a region near surface of the substrate.

9. (Amended) A method of manufacturing a semiconductor device according to Claim 7, wherein phosphorus ion is [ion-]implanted with [high acceleration] an energy of about 100 KeV to 200 KeV [at said forming process of] in the substrate to form the [fourth concentration reverse conductive type] layer.

10. (Amended) A method of manufacturing a semiconductor device according to Claim 8,

wherein phosphorus ion is [ion-]implanted with [high acceleration] <u>an</u> energy of about 100 KeV to 200 KeV [at said forming process of the fourth concentration reverse conductive type] <u>in the substrate to form the</u> layer.

11. (Amended) A method of manufacturing a semiconductor device according to Claim 7,

wherein <u>for forming the layer,</u> ion implantation is carried out at a region spanning from a [position separated the] predetermined space from said first gate insulation film to said third [concentration reverse conductive type] drain region by using a photo-resist as a mask [at said forming process of the fourth concentration reverse conductive type layer].

12. (Amended) A method of manufacturing a semiconductor device according to Claim 8,

wherein <u>for forming the layer,</u> ion implantation is carried out at a region spanning from a [position separated the] predetermined space from said first gate insulation film to said third [concentration reverse conductive type] drain region by using a photo-resist as a mask [at said forming process of the fourth concentration reverse conductive type layer].

13. (Amended) A method of manufacturing a semiconductor device according to Claim 7,

wherein <u>for forming the layer,</u> ion implantation is carried out at a region spanning from a [position separated the] predetermined space from the first gate insulation film to said third [concentration reverse conductive type] drain region by using a side wall insulation film formed at a side wall portion of said first gate insulating film as a mask [at said forming process of the fourth concentration reverse conductive type layer].

14. (Amended) A method of manufacturing a semiconductor device according to Claim 8,

wherein <u>for forming the layer,</u> ion implantation is carried out at a region spanning from a [position separated the] predetermined space from the first gate insulation film to said third [concentration reverse conductive type] drain region by using a side wall insulation film formed

at a side wall portion of said first gate insulating film as a mask [at said forming process of the fourth concentration reverse conductive type layer].

15. (Amended) A method of manufacturing a semiconductor device according to Claim 7,

wherein said [fourth concentration reverse conductive type] layer is formed at a region spanning from a [position separated the] predetermined space from the first gate insulation film to said third [concentration reverse conductive type] drain region [by ion-implanting from oblique upper side of the first gate insulation film] by using said first gate insulation film as a mask and ion-implanting obliquely from an upper side of the first gate insulation film [at said forming process of the fourth concentration reverse conductive type layer].

16. (Amended) A method of manufacturing a semiconductor device according to Claim 8,

wherein said [forth concentration reverse conductive type] layer is formed at a region spanning from a [position separated the] predetermined space from the first gate insulation film to said third [concentration reverse conductive type] drain region [by ion-implanting from oblique upper side of the first gate insulation film] by using said first gate insulation film as a mask and ion-implanting obliquely from an upper side of the first gate insulation film [at said forming process of the fourth concentration reverse conductive type layer].

17. (Amended) A method of manufacturing a semiconductor device according to Claim 7,

wherein said [fourth concentration reverse conductive type] layer is formed at a region spanning from a [position separated the] predetermined space from the first gate insulation film to said third [concentration reverse conductive type] drain region [by ion implantation from oblique upper side] by using a photo-resist formed [so as] to cover said first gate insulation film and ion implanting obliquely from above the first gate insulation film [as a mask at said forming process of the fourth concentration reverse conductive type layer].

18. (Amended) A method of manufacturing a semiconductor device according to Claim 8,

wherein said [fourth concentration reverse conductive type] layer is formed at a region spanning from a [position separated the] predetermined space from the first gate insulation film to said third [concentration reverse conductive type] drain region [by ion implantation from oblique upper side] by forming a photo-resist formed [so as] to cover said first gate insulation film <u>and ion implanting obliquely from above the first gate insulation film</u> [as a mask at said forming process of the fourth concentration reverse conductive type layer].

19. (Amended) A method of manufacturing a semiconductor device according to Claim 7,

wherein [high impurity concentration of] said first [concentration reverse conductive type] drain region [is formed so as to become] <u>has a</u> lower <u>impurity concentration</u> than said second [concentration reverse conductive type] drain region [by that said impurity ion-implanted is taken in the first gate insulation film at field oxidation].

20. (Amended) A method of manufacturing a semiconductor device according to Claim 8,

wherein [high impurity concentration of] said first [concentration reverse conductive type] drain region [is formed so as to become] <u>has a</u> lower <u>impurity concentration</u> than said second [concentration reverse conductive type] drain region [by that said impurity ion-implanted is taken in the first gate insulation film at field oxidation].